

servatory of Belgium, under the auspices of which both were prepared and published, is to be congratulated upon having performed an exceedingly useful, if tedious, duty.

As any attempt to separate magnetism and seismology would have led to needless duplication and confusion, the arrangement is purely alphabetical. For each station are given the geographical position, the altitude, the nature of the ground on which the observatory stands, the publications wherein the results appear, the names of the staff, a brief history of the observatory, and the nature and distance of any disturbing elements, such as tramways, &c., and, finally, a description of the instruments and the special researches to which they are dedicated. Other lists show the continental and national distribution of the two kinds of observatories, and, alphabetically, the names of the observers.

Such a list was to have been prepared by the International Commission for Terrestrial Magnetism, but the project failed; the data then collected, however, have been placed at the service of the compilers of the present work, and have proved very useful.

W. E. R.

An Inconsistent Preliminary Objection against Positivism. By Prof. Robert Ardigo. Translated by Emilio Gavirati. Pp. 52. (Cambridge: W. Heffer and Sons, Ltd., 1910.) Price 1s. net.

THIS pamphlet, by the veteran leader of Italian positivism, is issued in translation by a devoted admirer and disciple who wishes to find an English helper in the translation and publication of other works by the "great master." Its argument is directed against those opponents who, on behalf of modern idealism, contend that in positivism there is to be found this fundamental fault—namely, that, according to the method which the positivist has prescribed to himself, the subject ought, in his system, to become an object which cannot have, therefore, any of the characteristics belonging to subjectiveness. Prof. Ardigo, as St. George to the dragon of metaphysics, develops a subtle and closely reasoned argument for a positivist treatment of psychology, criticising the positions associated with the names of Bergson and Boutroux. He is also careful to show that positivism differs widely from materialism, with which there is—very naturally—a tendency to confound it. The substance of this pamphlet is contained in the second part of volume x. of Ardigo's "Philosophical Works."

Analytical Chemistry. By Prof. F. P. Treadwell. Authorised translation from the German by William T. Hall. Vol. ii. Quantitative Analysis. Second edition. Pp. x+787. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1910.) Price 17s. net.

A REVIEW of the first edition of Mr. Hall's translation of Prof. Treadwell's work on quantitative analysis was published in NATURE of August 11, 1904 (vol. lxx., p. 341). In the present issue certain additions have been made which are not found in the German text, and the main part of the work has been compared with the fourth German edition.

Students' Life and Work in the University of Cambridge. Two lectures by Prof. Karl Breul. Revised edition. Pp. 60. (Cambridge: Bowes and Bowes, 1910.) Price 1s. net.

THE two lectures delivered by Prof. Karl Breul to the students attending the University Extension summer meeting in 1908 give an interesting and informative account of the life and work of Cambridge undergraduates. In the revised edition a few corrections and additions have been made.

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LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Early Burial Customs in Egypt.

ALL who are interested in the serious attempts that are being made to reconstruct the real history of ancient Egypt and to sift established truth from wild conjecture must deplore Prof. Flinders Petrie's attempt (see NATURE of September 29, p. 401) to revivify the corpse of a belief in the supposition that the archaic Egyptians were in the habit of cutting up their dead, a view which has been so effectually hanged, drawn, and quartered during the last ten years.

When Prof. Petrie states (*op. cit.*, p. 401, quoted from *Man*, September) that "it has long been known that in prehistoric burials the corpse was stripped of its flesh, the bones even being broken to extract the marrow," he should have written that he and M. de Morgan had stated that the prehistoric Egyptians dissected the bodies of their dead. But, even though Profs. Maspero, Sayce, Wiedemann, and Lortet repeated these or similar statements (Sayce and Lortet invoking the aid of birds of prey to do the bone-cleaning!), the experience gained by other excavators has totally shattered and destroyed every scrap of evidence that could lend any support to the belief in the reality of such practices.

In 1896 Prof. Petrie ("Naqada and Ballas," p. 32) attempted to explain the disturbed condition of the skeletons found in many archaic Egyptian graves by saying "that bodies were sometimes—with all respect—cut up and partly eaten"!

Four years later Dr. George A. Reisner proved that such disturbances of the bones as Prof. Petrie mentioned were the result of the operations of grave-plunderers (see the Egyptian Exploration Fund's Archaeological Report for 1900-1, p. 25); and every year since then this explanation has been proved to be true in every case where disturbances have been found amongst many thousands of burials of all ages and in every part of Egypt and Nubia, which have been submitted to the most thorough and critical examination, not only by Dr. Reisner himself, but also of many independent witnesses. The evidence referring to Nubia is set forth *in extenso* in the First Annual Report of the Archaeological Survey of Nubia, which is being published in Cairo this month. During my ten years' association with Dr. Reisner, my collaborators in the anatomical branch of the work and I have examined and made notes on the remains of more than 15,000 human beings buried in the Nile Valley, and we have not seen a single case which afforded any evidence whatsoever of the practices postulated by Prof. Petrie.

Secondary burials, of course, occurred in ancient Egypt: but they were exceedingly rare, probably more so than in modern England. Perhaps some archaeologist of the next millennium will find infinitely more evidence in English graveyards of the twentieth century in support of speculations on our "customs of mutilation of corpses and cannibalism" than Prof. Petrie has been able to gather in Egypt.

It would, indeed, be a matter for astonishment if such a people as the ancient Egyptians, whose respect for their dead is proverbial, did not attempt to restore to order the graves of relatives that had been desecrated by grave-plunderers. The surprising thing is not that we find instances of reburial, but that they are so exceedingly rare.

During the Græco-Roman period in Egypt and Nubia, when the decadence of the art of mummification had definitely begun, it often happened that bodies handed over to the embalmers were treated in such a careless manner that they fell to pieces in an early stage of the process, and had to be rebuilt—sometimes with limb-bones reversed, leg-bones as skeletons for arms, portions of other skeletons introduced, and often foreign materials added. This "faking" of mummies is described in detail in the forthcoming Report of the Archaeological Survey of Nubia.

Would it be unreasonable to suppose that in the early experimental stages of the art of embalming—corresponding to the epoch with which Prof. Petrie is dealing—similar failures may have occurred, and that such a condition, for example, as Prof. Petrie has described from Deshasheh, where the fibula was upside down (see "Deshasheh," 1898, Pl. xxxvii.), would receive a natural explanation? Such cases are so exceedingly rare that it is idle to quote them as representing the "custom" of the country.

Apart from these rare exceptional cases of secondary burial and embalmers' "faking," all the disturbances of the bones of un plundered graves result from (1) the operation of the force of gravity on bodies falling into decomposition, and (2) the occasional action of rodents moving small bones. That this is so has been conclusively demonstrated by Dr. Reisner in the minute and critical examination of many thousands of burials in Egypt and Nubia. Thus there are very precise and definite reasons for discarding Prof. Petrie's fantastic speculations, and for accepting in their stead the simple and perfectly obvious explanation of the disturbed state of the skeleton in many graves, which he who runs may read.

The phrase "the bones even being broken to extract the marrow" (*op. cit.*, NATURE, p. 401) calls for some further comment. Does it mean that Prof. Petrie is reaffirming his former statement of a belief in the practice of cannibalism (already quoted)? Can he point to one single case where the bones of a prehistoric Egyptian have been broken *post-mortem*, except by grave-plunderers, excavators, or the natural forces of the denudation of the soil and the disintegration of organic matter?

In "Naqada and Ballas," p. 32, Prof. Petrie referred to the forcible scooping out of the marrow as an evidence of cannibalism; but that statement was clearly inspired by his lack of familiarity with the normal medullary cavity of a human long bone and its relation to the cancellous tissue at the ends. But he added, further, that "there were grooves left by gnawing on the bones"—a sure sign of anthropophagy! Dr. Fouquet, who examined M. de Morgan's material of a similar nature, also saw these grooves, but called them "syphilitic ulcers."

Two years ago (*Lancet*, August 22, 1908, p. 521) I was able to demonstrate that the bones of many pre-dynastic Egyptians were certainly gnawed, but neither by man nor the spirochaete: the damage was inflicted by small necrophilous beetles. Although Prof. Petrie no longer refers to these signs of gnawing, he still speaks of the prehistoric Egyptian breaking human bones "to extract the marrow," i.e. presumably to eat it. The whole evidence afforded by excavations in Egypt goes to prove that this statement is pure fiction.

G. ELLIOT SMITH.

The University of Manchester, October 1.

British Marine Zoology.

"THE proof of the pudding is in the eating," and surely Prof. MacBride will admit that whether a biological station is or is not suitable for research must be decided, not by the expensiveness of the equipment, but by observing whether research is being carried on there.

That one station is ten times as large and expensive as another is no advantage and no credit to it unless it is also ten times as efficient. That it is only in such an establishment that Prof. MacBride can "bring research to a successful issue" is, of course, an important personal record, but it might be unsafe to generalise from one such observation.

I am sorry not to be able to agree with Prof. MacBride in the distinctions he draws between the stations equipped for research and others; and I cannot avoid a doubt as to whether he has personal knowledge of the smaller stations of this country.

W. A. HERDMAN.

October 1.

I SHALL gratify Prof. Herdman's curiosity so far as to say that I have worked at more than one small station in this country.

I fully agree that "the proof of the pudding is in the eating," and I am content to leave it to the judgment of

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my fellow-zoologists whether in reviewing the work done at the various zoological stations in this country Plymouth has not justified its superior equipment by the superiority of the original work, both as to quantity and quality, which has been accomplished there.

E. W. MACBRIDE.

Hormones in Relation to Inheritance.

WITH reference to my presidential address to Section D of the British Association, of which a full report appeared in NATURE of September 22, I must rectify an omission by pointing out that the theory of the possible influence of hormones in inheritance was first enunciated by Mr. J. T. Cunningham in a paper in the *Archiv für Entwicklungsmechanik*, vol. xxvi., 1908, entitled "The Heredity of Secondary Sexual Characters in Relation to Hormones, a Theory of the Heredity of Somatogenic Characters." It was through inadvertence that the reference to Mr. Cunningham's paper was not printed in the copies of the address distributed at the meeting at Sheffield.

GILBERT C. BOURNE.

Savile House, Oxford, October 4.

Pwdre Ser.

My friend Mr. Frank Darwin has sent me the following additional information respecting the *Pwdre Ser*.

"The 'Treasury of Botany' says that Nostoc is called 'Falling Stars,' and quotes Dryden (no reference)—

'And lest our leap from the sky prove too far,
We slide on the back of a new falling star,
And drop from above
In a jelly of love.'

"The note is signed M. J. B.=Berkeley, so it may be trusted so far as that it really refers to Nostoc."

T. McKENNY HUGHES.

Ravensworth, Brooklands Avenue, Cambridge,
September 30.

Unemployed Laboratory Assistants.

A NUMBER of lads who have been employed as laboratory monitors in secondary schools, and whom the London County Council are unable to retain in their service beyond the age of sixteen years, have been referred to us by the London County Council with the view of our placing them. Some of them we have already been able to place in suitable employment, but there are still one or two on our books for whom we seek situations.

They all have an elementary knowledge of physics and chemistry. Some have learned glass-blowing and bending, and a few of the applicants have already passed the Board of Education examination in Chemistry (Stage I.). If any readers of NATURE would like to have further particulars of these boys, I should be glad to supply them with information.

GODFREY E. REISS (*Hon. Sec.*).

Apprenticeship and Skilled Employment Association,
36 Denison House, 296 Vauxhall Bridge Road,
London, S.W., October 5.

THE INTERNATIONAL UNION FOR COOPERATION IN SOLAR RESEARCH.

THIS union held a very successful meeting—the fourth since its foundation—on Mount Wilson Observatory, California, during the last week of September, when there was an assembly of nearly forty European astronomers and physicists, who had crossed the Atlantic for the meeting, and many more American men of science. England was represented, among others, by Sir Joseph Larmor, Profs. Newall, Turner, Fowler, and Mr. Dyson. The gathering, representative as it was of all nations actively engaged in solar work, would have been even more so if a number of those who had signified their intention of being present had not at the last moment been pre-